

## THE CLAIMS

1. (Currently amended) A method of generating a template in an implantable medical device, comprising:  
sensing a plurality of events;  
determining whether there are first consecutive events of the plurality of events having first characteristics;  
waiting until there are first consecutive events of the plurality of events having first characteristics;  
identifying, in response to the first consecutive events of the plurality of events having first characteristics, a predetermined number of events of the plurality of events subsequent to the first consecutive events having second characteristics as first selected events;  
generating the template from only the first selected events;  
generating a plurality of cross-matches between the predetermined number of events, the generating the plurality of cross-matches comprising matching a first event of the predetermined number of events to a second event of the predetermined number of events to compute a cross-match between the first event of the predetermined number of events and the second event of the predetermined number of events; and  
determining whether a predetermined number of the plurality of generated cross-matches are within a predetermined cross-match threshold, wherein the template is generated from events of the predetermined number of events corresponding to the cross-matches determined to be within the cross-match threshold.

2. (Original) The method of claim 1, wherein the first characteristics correspond to two consecutive events that are ventricular sensed events having RR-intervals greater than a threshold interval.
3. (Original) The method of claim 1, wherein the second characteristics include being a ventricular sense event other than a ventricular pace event, a ventricular sense event having an R-R interval greater than a predetermined rate, a ventricular sense event other than a first ventricular sense event immediately following a ventricular pace event, and a ventricular sense event that was immediately preceded by an atrial pace event and for which an interval between the ventricular sense event and the atrial pace event is greater than a threshold interval.
4. (Original) The method of claim 3, wherein the predetermined rate is approximately equal to 600 ms and the threshold interval is approximately equal to 100 ms.
5. (Canceled)
6. (Previously presented) The method of claim 1, further comprising:  
  
determining, in response to the predetermined number of the generated cross-matches not being within a predetermined cross-match threshold, whether a predetermined number of cross-match computations have failed to generate the predetermined number of generated cross-matches that are within the predetermined cross-match threshold; and  
  
generating a delay in response to the predetermined number of cross-match computations having failed to generate the predetermined number of generated cross-matches that are within the predetermined cross-match threshold.
7. (Previously presented) The method of claim 1, further comprising:

determining whether a predetermined number of events of the plurality of events have been identified as other than first selected events;

determining, in response to the predetermined number of events of the plurality of events being identified as other than first selected events, whether there are second consecutive events of the plurality of sensed events having the first characteristics;

identifying the predetermined number of events of the plurality of events subsequent to the second consecutive events having the second characteristics as second selected events; and

generating the template from the second selected events.

8. (Original) The method of claim 7, wherein the first characteristics correspond to two consecutive events that are ventricular sensed events having RR-intervals greater than a predetermined threshold.
9. (Original) The method of claim 8, wherein the second characteristics include being a ventricular sense event other than a ventricular pace event, a ventricular sense event having an R-R interval greater than a predetermined rate, a ventricular sense event other than a first ventricular sense event immediately following a ventricular pace event, and a ventricular sense event that was immediately preceded by an atrial pace event and for which an interval between the ventricular sense event and the atrial pace event is greater than a threshold interval.
10. (Original) The method of claim 9, wherein the predetermined rate is approximately equal to 600 ms and the threshold interval is approximately equal to 100 ms.
11. - 15. (Canceled)

16. (Previously presented) A method of generating a template in an implantable medical device, comprising:

sensing a plurality of events;

determining whether there are first consecutive events of the plurality of events having first characteristics;

identifying a predetermined number of events of the plurality of events subsequent to the first consecutive events having second characteristics as first selected events;

generating the template from only the first selected events;

generating a plurality of cross-matches between the predetermined number of events, the generating the plurality of cross-matches comprising matching a first event of the predetermined number of events to a second event of the predetermined number of events to compute a cross-match between the first event of the predetermined number of events and the second event of the predetermined number of events; and

determining whether a predetermined number of the plurality of generated cross-matches are within a predetermined cross-match threshold, wherein the template is generated from events of the predetermined number of events corresponding to the cross-matches determined to be within the cross-match threshold, further comprising:

- (i) determining whether there are next consecutive events subsequent to the first selected events having the first characteristics;
- (ii) identifying the predetermined number of events of the plurality of events subsequent to the next consecutive events having the second characteristics as next selected events;

- (iii) determining whether a predetermined number of the next selected events match the template;
  - (iv) incrementing a first counter in response to the predetermined number of the next selected events matching the template;
  - (v) determining the template is valid in response to the first counter being equal to a predetermined threshold value; and
  - (vi) repeating (i)-(iv) in response to the first counter not being equal to the predetermined threshold value.
17. (Original) The method of claim 16, wherein the first characteristics correspond to two consecutive events that are ventricular sensed events having RR-intervals greater than a predetermined threshold.
18. (Original) The method of claim 17, wherein the second characteristics include being a ventricular sense event other than a ventricular pace event, a ventricular sense event having an R-R interval greater than a predetermined rate, a ventricular sense event other than a first ventricular sense event immediately following a ventricular pace event, and a ventricular sense event that was immediately preceded by an atrial pace event and for which an interval between the ventricular sense event and the atrial pace event is greater than a threshold interval.
19. (Original) The method of claim 18, wherein the predetermined rate is approximately equal to 600 ms and the threshold interval is approximately equal to 100 ms.
20. (Canceled)
21. (Previously presented) A method of generating a template in an implantable medical device, comprising:  
sensing a plurality of events;

determining whether there are first consecutive events of the plurality of events having first characteristics;

identifying a predetermined number of events of the plurality of events subsequent to the first consecutive events having second characteristics as first selected events;

matching an event of the predetermined number of events identified as first selected events to another event of the predetermined number of events identified as first selected events to generate first cross-matches;

generating the template from only the first selected events in response to a predetermined number of the generated first cross-matches being within a predetermined cross-match threshold;

determining whether there are second consecutive events of the plurality of sensed events having the first characteristics;

identifying the predetermined number of events of the plurality of events having the second characteristics as second selected events;

determining whether a predetermined number of the second selected events match the template;

matching an event of the predetermined number of events identified as second selected events to another one of the predetermined number of events identified as second selected events to generate second cross-matches;

determining whether a predetermined number of the generated second cross-matches are within the predetermined cross-match threshold; and

updating the template from events of the predetermined number of events corresponding to the second cross-matches determined to be within the cross-match threshold.

22. (Original) The method of claim 21, wherein the first characteristics correspond to two consecutive events that are ventricular sensed events having RR-intervals greater than a threshold interval
23. (Original) The method of claim 22, wherein the second characteristics include being a ventricular sense event other than a ventricular pace event, a ventricular sense event having an R-R interval greater than a predetermined rate, a ventricular sense event other than a first ventricular sense event immediately following a ventricular pace event, and a ventricular sense event that was immediately preceded by an atrial pace event and for which an interval between the ventricular sense event and the atrial pace event is greater than a threshold interval.
24. (Original) The method of claim 23, wherein the predetermined rate is approximately equal to 600 ms and the threshold interval is approximately equal to 100 ms.
25. (Original) The method of claim 24, further comprising:  
determining, in response to the predetermined number of the generated first cross-matches not being within a predetermined cross-match threshold, whether a predetermined number of cross-match computations have failed to generate the predetermined number of generated first cross-matches that are within the predetermined cross-match threshold;  
and  
generating a delay in response to the predetermined number of cross-match computations having failed to generate the predetermined number of generated first cross-matches that are within the predetermined cross-match threshold.
26. (Previously presented) The method of claim 24, further comprising:

determining whether a predetermined number of events of the plurality of events have been identified as other than first selected events;

determining, in response to the predetermined number of events of the plurality of events being identified as other than first selected events, whether there are third consecutive events of the plurality of sensed events having the first characteristics;

identifying the predetermined number of events of the plurality of events subsequent to the third consecutive events having the second characteristics as third selected events; and

generating the template from the third selected events.

27. (Currently amended) An implantable medical device, comprising:

means for sensing a plurality of events;

means for determining whether there are first consecutive events of the plurality of events having first characteristics;

means for waiting until there are first consecutive events of the plurality of events having first characteristics;

means for identifying, in response to the first consecutive events of the plurality of events having first characteristics, a predetermined number of events of the plurality of events subsequent to the first consecutive events having second characteristics as first selected events;

means for generating the template from only the first selected events;

means for generating a plurality of cross-matches between the predetermined number of events, the generating the plurality of cross-matches comprising matching a first event of the predetermined number of events to a second event of the predetermined number of events to compute a cross-match between the first event of the predetermined



number of events and the second event of the predetermined number of events; and

means for determining whether a predetermined number of the plurality of generated cross-matches are within a predetermined cross-match threshold, wherein the template is generated from events of the predetermined number of events corresponding to the cross-matches determined to be within the cross-match threshold.

28. (Original) The device of claim 27, wherein the first characteristics correspond to two consecutive events that are ventricular sensed events having RR-intervals greater than a threshold interval.
29. (Original) The device of claim 28, wherein the second characteristics include being a ventricular sense event other than a ventricular pace event, a ventricular sense event having an R-R interval greater than a predetermined rate, a ventricular sense event other than a first ventricular sense event immediately following a ventricular pace event, and a ventricular sense event that was immediately preceded by an atrial pace event and for which an interval between the ventricular sense event and the atrial pace event is greater than a threshold interval.
30. (Original) The device of claim 29, wherein the predetermined rate is approximately equal to 600 ms and the threshold interval is approximately equal to 100 ms.
31. (Currently amended) A computer-readable medium having computer-executable instructions for performing a method, comprising:  
  
sensing a plurality of events;  
  
determining whether there are first consecutive events of the plurality of events having first characteristics;

waiting until there are first consecutive events of the plurality of events having first characteristics;

identifying, in response to the first consecutive events of the plurality of events having first characteristics, a predetermined number of events of the plurality of events subsequent to the first consecutive events having second characteristics as first selected events;

generating the template from only the first selected events;

generating a plurality of cross-matches between the predetermined number of events, the generating the plurality of cross-matches comprising matching a first event of the predetermined number of events to a second event of the predetermined number of events to compute a cross-match between the event of the predetermined number of events and the second event of the predetermined number of events; and

determining whether a predetermined number of the plurality of generated cross-matches are within a predetermined cross-match threshold, wherein the template is generated from events of the predetermined number of events corresponding to the cross-matches determined to be within the cross-match threshold.

32. (Previously presented) The computer-readable medium of claim 31, wherein the first characteristics correspond to two consecutive events that are ventricular sensed events having RR-intervals greater than a threshold interval.
33. (Previously presented) The computer-readable medium of claim 32, wherein the second characteristics include being a ventricular sense event other than a ventricular pace event, a ventricular sense event having an R-R interval greater than a predetermined rate, a ventricular sense event other than a first ventricular sense event immediately following a ventricular pace event, and a ventricular sense event that was

immediately preceded by an atrial pace event and for which an interval between the ventricular sense event and the atrial pace event is greater than the threshold interval.

34. (Previously presented) The computer-readable medium of claim 33, wherein the predetermined rate is approximately equal to 600 ms and the threshold interval is approximately equal to 100 ms.